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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,961	07/30/2001	Heather Noel Bean	10011698	9356

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

ROSARIO, DENNIS

ART UNIT PAPER NUMBER

2621

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/917,961

Applicant(s)

BEAN ET AL.

Examiner

Dennis Rosario-Vasquez

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-9 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-9 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment was entered on September 16, 2004. Claims 1-5,7-9 and12-20 are pending.

Response to Arguments

2. Applicant's arguments, pages 6,7 with respect to claims 1 and 16 have been considered but are moot in view of the new ground(s) of rejection.
3. Applicant's arguments, pages 7,8 with respect to claims 3,4,6,7,9,11,12,14,15 and 18-29 have been considered but are moot in view of the new ground(s) of rejection.

Double Patenting

4. Due to the amendment, the double patenting rejection has been withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,2,4,5,7-9 and16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Bacs, Jr. et al. (US Patent 5,678,089 A).

Regarding claim 1, Bacs, Jr. et al. discloses an imaging module for a still digital image capturing device, comprising:

a) an electronic imaging sensor device (Fig. 13, num. 22 is an "imaging plane" in col. 13, line 41.) comprising a plurality of pixels (The imaging plane comprises an IMAGE FRAME BUFFER 154. Thus, the IMAGE FRAME BUFFER contains images made of pixels.); and

b) an electronically actuatable shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49 and is connected to an ACTUATOR 34 of fig. 13.) comprising a plurality of individually addressable and actuatable shutter elements (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.), each of said plurality of individually addressable shutter elements substantially corresponding to at least one of said plurality of pixels (The shutter elements are used to capture the image using the IMAGE FRAME BUFFER, thus the shutter elements capture an image that comprises pixels.);

c) a storage medium (Fig. 8,num. 94: DRIVER is a program in col. 11, lines 2-4.) that stores a plurality of shutter exposure patterns (The DRIVER is programmed to generate the patterns shown in figures 6a-6f in col. 10, lines 55-58.), each shutter exposure pattern (Figs. 6a-6f are patterns.) defining a predefined group of shutter elements (The patterns are used to activate "cells" 92 of fig. 8 or shutter elements in col. 10, lines 55-58 .) to be actuated (The cells are actuated by the DRIVER in col. 10, lines 51-53.) for illumination (The cells are actuated to be "transparent" in col. 10, lines 51-55.) of said imaging sensor device (Fig. 13, num. 22 is an "imaging plane" in col. 13, line 41 that uses the shutter elements located in numeral 28 for imaging.); and

d) a controller (Fig. 13, num. 158: CONTROLLER) that allows a user to select one (The CONTROLLER receives input via a computer 156 of fig. 13 with a user interface as shown in fig. 19, num. 220: USER INTERFACE to select the patterns of figs. 6a-6f.) of said stored plurality of shutter exposure patterns (Figs. 6a-6f are patterns.), and which applies a selected shutter exposure pattern (Fig. 6a) to said shutter device (Fig. 13, num. 28 is an optical element) to allow light reflected from an object (fig. 13, label "A") whose image is to be captured to illuminate (Light is allowed thru via transparent cells 92 and 96 of fig. 8 of the shutter of fig. 8, num. 90.) said imaging sensor (Fig. 13, num. 22 captures an image of an object using light.) through said selected shutter exposure pattern (Fig. 6a).

Regarding claim 2, Bacs, Jr. et al. discloses the apparatus of claim 1, wherein said imaging sensor device (Fig. 13, num. 22 is an "imaging plane" in col. 13, line 41.) comprises a two-dimensional array of pixel elements (Fig. 1 shows num. 22 of fig. 13 as a two-dimensional array.) and said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49 and is connected to an ACTUATOR 34 of fig. 13.) comprises a LCD element (Fig. 8, num. 90 is a detailed view of fig. 13, num. 28 which is a "liquid crystal...panel" in col. 10, line 50.) comprising a two-dimensional array of individually addressable and actuatable shutter elements (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.) corresponding to said two-dimensional array of pixel elements (Fig. 13 shows the shutter elements 28 corresponding with the 2 dimensional array of pixel elements 22.).

Regarding claim 4, Bacs Jr. et al. discloses the apparatus of claim 1, wherein said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49) comprises a microelectromechanical shutter element (The optical element has a "mechanical link" in col. 6, line 1,2.) comprising a two-dimensional array of individually addressable and actuatable shutter elements (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.).

Regarding claim 5, Bacs Jr. et al. discloses the apparatus of claim 1, further comprising a memory (Fig. 8,num. 94:DRIVER is a program in col. 11, lines 3,4.) including an address storage (The DRIVER that includes addresses that correspond to patterns in col. 10, lines 53-58.) capable of storing one or more shutter element addresses (The DRIVER is capable of storing addresses since the DRIVER is a program and the program has to be on a storage medium.)

Regarding claim 7, Bacs Jr. et al. discloses the apparatus of claim 1; wherein at least one of said shutter exposure patterns (Figs. 6a-6f are patterns.) specify a plurality of exposure time periods (One of the patterns "per second" of figure 6 can be used in col. 3, lines 49,50.) corresponding to a plurality of shutter elements (Fig. 8, num. 90 is used to create the patterns of fig. 6.) to be actuated (Fig. 8,num. 90 also shown in fig. 13,num. 28 is connected to an actuator, fig. 13, num. 34.).

Regarding claim 8, Bacs Jr. et al. discloses the apparatus of claim 1, wherein said shutter device (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49) is formed on and is substantially co-planar with said imaging sensor device (Fig. 13, num. 28 is aligned represented as a horizontal line with sensor, fig. 13, num. 22.).

Claims 9 and 17 are rejected the same as claim 8. Thus, argument similar to that presented above for claim 8 is equally applicable to claims 9 and 17.

Claim 16 is rejected the same as claim 1. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 16.

Claim 19 is rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claim 19.

Claim 20 is rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claim 20.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3, 12-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bacs, Jr. et al. (US Patent 5,678,089 A) in view of Kato et al. (US Patent 4,154,505 A).

Regarding claim 3, Bacs, Jr, et al. teaches a pixel unit (Figure 8,num. 92c) that is individually addressable (Fig. 8 shows a detail of the shutter 28 of fig. 13 where shutter elements 92 are "individually addressed" in col. 10, line 53.) and actuable (Fig. 13, num. 28 is an optical element in col. 13, line 38 that can be used as a shutter in col. 15, lines 47-49 and is connected to an ACTUATOR 34 of fig. 13.) such that each pixel unit (Figure 8,num. 92c) receives light from an object being imaged (Fig. 13,num. 28 includes a pixel unit 92 of figure 8 that receives a visual object A for imaging.).

However, Bacs Jr. et al. does not teach the polarization limitation of claim 3, but does suggest using "polarization" for "stereoscopic techniques" and "shuttering technologies" for "stereoscopic techniques" are used for in col. 1, lines 46-48. Thus, Bacs, Jr. et al.'s camera or more specifically shutter of figure 8 can be modified with a polarization technique.

Kato et al. (US Patent 4,154,505 A), in the analogous field of cameras in col. 1, line 8, does teach a polarization technique as suggested by Bacs, Jr. et al and Kato et al. discloses the technique of:

An imaging module for a digital still image capturing device, comprising a two-dimensional array of individually addressable and [actuatable] **actuation** shutter elements and an electronic imaging sensor device having a two-dimensional array of pixel sensors, wherein a pixel unit of said imaging module comprises:

a) a first combination polarizing shutter element (Fig. 2,num 21:POLARIZER) and pixel sensor, with said first polarizing shutter element (Fig. 2,num 21:POLARIZER) being of a first polarization orientation (90 degrees or “perpendicular” to shutter of fig. 2,num. 22:POLARIZER in col. 4, lines 52-54 .); and

b) a second combination polarizing shutter element (Fig. 2,num. 22:POLARIZER) and pixel sensor, with said second polarizing shutter element (Fig. 2,num. 22:POLARIZER) being of a second polarization orientation that is substantially orthogonal to said first polarization orientation (90 degrees or “perpendicular” to shutter of fig. 2,num. 21:POLARIZER in col. 4, lines 52-54 .);

c) wherein said pixel unit is individually addressable and [actuatable] **actuated** such that each pixel unit receives light from an object being imaged through both said first polarizing shutter element (Fig. 2,num 21:POLARIZER) and said second polarizing shutter element (Fig. 2,num. 22:POLARIZER) to obtain a substantially non-polarized image (“complete elimination of the polarization” in col. 6, line 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bacs Jr. et al.s shutter of fig. 13,num. 28 and teaching of using “polarization” for “stereoscopic techniques” and “shuttering technologies” for “stereoscopic techniques” are used for in Bacs Jr. et al., col. 1, lines 46-48 with Kato’s teaching of polarizers 21 and 22 of fig. 2, because Kato’s teaching improves “contrast” in Kato, col. 6, line 12.

Claim 12 is rejected the same as claim 4. Thus, argument similar to that presented above for claim 4 is equally applicable to claim 12.

Claims 13 and 14 are rejected the same as claim 5. Thus, argument similar to that presented above for claim 5 is equally applicable to claims 13 and 14.

Claim 15 is rejected the same as claim 7. Thus, argument similar to that presented above for claim 7 is equally applicable to claim 15.

Claim 18 is rejected the same as claim 3. Thus, argument similar to that presented above for claim 3 is equally applicable to claim 18.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario-Vasquez whose telephone number is 703-305-5431. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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